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Clarke's rejection of superadded gravity in the Clarke-Collins correspondence

Abstract

It has been a matter of debate whether Clarke accepted the idea that gravity is a power superadded to matter by God. Most scholars now agree that Clarke did not support superaddition. However, the argumentation employed by Clarke to reject superaddition has not been studied before. In this paper, I explicate Clarke's underlying argumentation by relating it to an important discussion on the possibility of superadded gravity in the Clarke-Collins correspondence. I will examine Clarke's answer to Collins and draw from Clarke's other works, in order to reconstruct the argumentation by which Clarke rejected superadded gravity.

Keywords: superaddition, active principles, gravity, Newton, Samuel Clarke, Anthony Collins

1. Clarke-Collins: active powers and the superaddition debate

In 1707 the English philosopher Samuel Clarke became embroiled in an influential debate with Anthony Collins. It was a clash between Clarke's theological Newtonianism and Collins' 'freethinking' Lockean philosophy. Their public

correspondence spanned 5 rounds of letters and essentially revolved around a famous and controversial suggestion by Locke, namely that we cannot rule out the possibility that thought is a power of matter. We find this suggestion in his *Essay Concerning Human Understanding*, 4.3.6:

We have the ideas of matter and thinking, but possibly shall never be able to know whether any mere material being thinks or no; it being impossible for us, by the contemplation of our own ideas, without revelation, to discover whether Omnipotency has not given to some systems of matter, fitly disposed, a power to perceive and think, or else joined and fixed to matter, so disposed, a thinking immaterial substance: it being, in respect of our notions, not much more remote from our comprehension to conceive that GOD can, if he pleases, superadd to matter a faculty of thinking, than that he should superadd to it another substance with a faculty of thinking (Locke 1824a, 2:79–103)

Clarke was a strong opponent of this idea. The suggestion of thinking matter was a sensitive issue; without a clear mind-body duality the Christian doctrines on the soul would suffer a severe blow. It had to be the case that the soul is immaterial and continues to exist after our death. This theological motive saw itself reflected in the philosophy of the time.

So when in 1706 a book was published by a certain Henry Dodwell, arguing that the soul was material and mortal, Clarke pushed back. He did so with a laborious public letter, filled to the brim with scriptural arguments demonstrating that Dodwell was mistaken in his beliefs. Dodwell was a theologian and a bishop, so this scripture-doctrine line of argumentation made a lot of sense. However, if combatting atheism

was his concern, scripture alone would not suffice. (For instance, scriptural arguments would not be an effective answer to Locke's suggestion of superaddition; as we can see from Locke's opinion quoted above, he explicitly left open the possibility that revelation gives us the certain knowledge which reason alone cannot provide.) Clarke knew he also had to demonstrate the immateriality of the soul by purely rational arguments, to convince those did not accept scriptural arguments – people such as Collins, who placed his 'love of reason' above any authority.

Within all the many pages of his rebuttal, Clarke provided a single philosophical argument against the possibility of thinking matter. His attempt to prove the immateriality of the soul¹ provoked one of Locke's close followers (and suspected atheist) Anthony Collins to respond; Collins had taken the bait. From this, an influential correspondence was born.

Though the majority of their debate concerns the nature of thought, there is a significant secondary theme which has not been given much attention; their discussion of superadded gravitation. Essentially the same worry applies to gravitation as to superadded thought. We can turn to Locke once again to find precedence for this worry. As Locke writes in his letters to Stillingfleet:

¹ This argument is now called the 'Achilles argument'; it is founded on the idea that consciousness is singular and undivided, while matter is plural and (infinitely) divisible. This is supposed to demonstrate that matter is fundamentally incompatible with thought or consciousness. See (Rozemond 2009, 173)

The gravitation of matter towards matter, by ways inconceivable to me, is not only a demonstration that God can, if he pleases, put into bodies powers and ways of operation, above what can be derived from our idea of body, or can be explained by what we know of matter, but also an unquestionable and everywhere visible instance, that he has done so. (Locke 1824b, 3:467)

In other words, matter may have its own activity after all, by having its very own power of gravitation. This was every bit as much of a problem for Clarke as thinking matter – matter had to be completely passive because his Newtonian theology depended on it. Clarke made frequent use of gravitation as evidence for what can be called God's continuous providence – that is, God's continued presence and activity in his creation. So while at first glance gravitation may seem a bit out of place within a debate about the soul, the inclusion of gravitation into their debate makes a lot of sense. In the early decades of the 18th century, thought and gravitation were considered very similar problems and were therefore sometimes discussed in unison.²

Contrary to popular belief, the threat of materialism was not (just) the radicalization of mechanical philosophy³, in which everything can be understood as

² The 'atheist threat', after all, revolved around the notion that everything could be reduced to mere matter and motion; the soul, the formation of life, and for some authors also the power of gravity, formed the clearest arguments against this godless materialism. All three topics are explicitly part of the discussion between Clarke and Collins.

³ And, in similar fashion, the mechanical philosophy might itself be more nuanced than mere contact-action conception of it. See (Kochiras 2013, 558)

the result of mechanical interactions of ‘dull and lifeless matter’ (Wunderlich 2016). Instead, many materialists did assume matter to have some self-moving powers (Wolfe 2015). Explicitly at stake in these debates was the question “what powers can matter have?”⁴ The Christian virtuosi, who were concerned with maintaining the duality of mind and body, were eager to make matter purely passive, as this would justify the need for immaterial substance – this is the move we will see very strongly in Samuel Clarke.

The publication of Newton’s theory of gravitation significantly complicated this notion of passive matter. Suddenly it seemed to be the case that matter *did* have its own attractive powers, by which all bodies attracted one another through some mysterious force which was neither transferred by impact (because it acted at a distance), nor did it respect the solidity of matter (because it acted on the centers of bodies). The existence of this force implied that every particle acted on every other particle, even millions of miles away, without any mechanical explanation for the transfer of this force. So something had to give; either matter can be active, or God continues to act on matter in what Leibniz mockingly described as a ‘perpetual miracle’ (Clarke and Leibniz 1976, 30).

⁴ See, for instance, (Yolton 1984) Aside from Locke, another good example of this worry can be found in Maupertius. For this, see (Downing 1997, 2011)

2. Active powers of matter in Newtonian physics?

As Newton's physics introduced all kinds of problems, people had to come up with new ways to understand gravitation. Among the early Newtonians, we can distinguish a number of different solutions⁵:

- 1) Continuous providence: gravity is not a power of matter, but a power of God, who is continually supplying matter with a force (e.g.: Samuel Clarke, Andrew Baxter, and probably Richard Bentley as well⁶)
- 2) Superaddition: matter is essentially passive, but God has superadded to it a power of gravity, which enables it to act (at a distance) on other bodies. Once this power has been superadded, matter is left to itself to act (e.g.: John Locke)
- 3) Innate power: matter has innate and essential powers of gravitation (e.g.: Roger Cotes)
- 4) Aether-theory: gravity is neither a power of matter, nor of God directly, but instead of an intermediary substance which is omnipresent. This aether can be either material or immaterial, with the former being a remnant of the old mechanical philosophy and the latter being pretty similar to option #1 except that the power has been delegated to a subordinate immaterial agent (e.g.: Colin MacLaurin)

⁵ For a similar run-down of the various solutions, see (Schliesser 2013, 45–46)

⁶ This has recently been argued for by (Connolly 2017)

- 5) Agnosticism: the mathematical laws as described in the *Principia* work, but they only describe the effects. We should not make any hypotheses about the cause of these effects.

Among Newton scholars, it has been a matter of continued debate which solution Newton opted for. For quite some time, it was assumed Newton rejected superaddition and action at a distance (Henry 1994). The common strategy has been to consider his talk of 'attractive powers of bodies' only as figures of speech or an unfortunate choice of language. Scholars had plenty of textual evidence to support this strategy; Newton frequently asserts that by 'attraction' he does not intend to make any ontological claims. For instance:

I use the word 'attraction' here in a general sense for any endeavor whatever of bodies to approach one another, whether that endeavor occurs as a result of the action of the bodies either drawn toward one another or acting on one another by means of spirits emitted or whether it arises from the action of aether or of air or of any medium whatsoever – whether corporeal or incorporeal – in any way impelling toward one another the bodies floating therein. (Newton 1999, 588)

However, John Henry has problematized such a reading of Newton. According to Henry's interpretation of Newton:

[It] would seem that Newton believed that matter, which is essentially passive, was endowed with various active principles by God. One of these active principles was, or gave rise to,

gravitational attraction: "we must ... universally allow that all bodies whatsoever are endowed with a principle of mutual gravitation." Gravity could be said, therefore, to be a property inherent in matter providing it was realised that it was a superadded property. (Henry 1994, 131)

Furthermore, Henry has argued that Samuel Clarke "accepts Newton's and Bentley's belief that gravity can be a power of matter, endowed by God, which enables matter to act at a distance" (Henry 1999, 43). According to Henry, then, Newton's various statements are in fact compatible with a superaddition theory of gravity, and Samuel Clarke as explicitly considered an advocate of this superaddition theory.

However, I believe that the idea of 'superadded gravity'⁷ is in no way compatible with Clarke's philosophy. I will show that within the Clarke-Collins correspondence we can find a clear argument by Clarke concerning the superaddition theory of gravity, which has so far escaped scholarly attention. I will put forward an answer to an important question raised by Collins in the correspondence, which current scholars have so far failed to account for: *Why* does Clarke reject superadded gravity, in favor of direct divine intervention? What reasons does Clarke have to favor one over the other? So far, the answer provided in the literature has been the obvious

⁷ By this I mean the idea that gravity is a power of matter which, though not part of the essence of matter, has nevertheless been added to it over and above the essence. Superaddition was one way philosophers attempted to make sense of the apparent contradiction between the essential passivity of matter and its seemingly active powers.

consideration that Clarke had theological motives for his dismissal (Vailati 1997, 145). This answer is not very satisfactory, and I will show that it does not give us the full story; Clarke had an interesting and coherent answer to the question of superadded gravitation. Namely, he considers gravitation to be an ‘abstract’ quality; it is only an effect of something else, and not itself a power. As such, superaddition would indicate a reversal of cause and effect, as it would improperly and confusedly take an effect to be the cause of something. Furthermore, the possibility of superadding the cause of gravity is blocked off by Clarke’s further argumentation.

3. Superaddition in the Clarke-Collins correspondence

We find an 18th-century echo of Henry’s qualms in the voice of Anthony Collins. Indeed, Collins was very confused when Clarke told him in no uncertain terms that gravity was definitely not a power of matter:

Mr. Clarke says that gravitation is the effect of the continued and regular operation of some other Being on matter. Whereas it does not appear but that matter gravitates by virtue of powers originally placed in it by God, and is now left to itself to act by those original powers. And it is as conceivable that matter should act by virtue of those powers, as that an immaterial being should originally put it into motion, or continue it in motion. (W III, 771)

The emphasis, for Collins, rests on the “as conceivable” element of his argument. He does not reject that God *could* be the continuously intervening cause of gravity, but he questions what evidence Clarke has to favor this possibility over superaddition. Either superaddition is an equally valid possibility, or Clarke has to give a good reason to

reject it.⁸ After all, what big difference is there between God adding a power once, or adding it continually?

But according to Clarke, the two options differ greatly in *what* gets added to matter. Collins may be correct in so far as either option would appear the same to our eyes (i.e., they are observationally equivalent) – but metaphysically there is a significant difference between adding a power once and continually ‘putting a body into motion’. The former assumes the addition of a (self-moving) power, which, once added, can continue to change the velocity and direction of the body. The latter, however, implies that, rather than adding a power, God merely produces a single change of velocity in a body at any given moment – impressing a force onto a body means nothing else than changing that body’s velocity. Thus, God’s “continued and regular operation” needs to be impressed again and again at every moment to produce the continuous acceleration of gravitational attraction. While the impressed force does not persist, the resulting velocity will – because bodies naturally resist any attempt to change their velocity.⁹ In Newtonian physics uniform motion persists indefinitely because of the *vis inertiae* of bodies (McMullin 1978, 34). Impressed forces can thus be

⁸ Though one may expect that this is merely a rhetorical device to put Clarke on the defensive, Collins seems genuinely surprised by Clarke’s later insistence against superadded gravity.

⁹ How to understand the relation between impressed force and inertial forces is, as McMullin called it, a “notoriously thorny issue” with plenty of complications. To my knowledge, however, these complications are not relevant for my reconstruction of Clarke’s position.

considered to be instantly expended (or converted) in producing the new motion of a body – the effect of an applied force is the body's new velocity. Clarke is at pains to make this clear in a short paper on the *vis viva* controversy, published in the Royal Society Transactions of 1728: “*Velocity and force, in this case, are one and the same thing. [...] The effect of a force impressed on a moveable body, is the motion of that body*” (Clarke 1728, 385–86).

In his *Discourse* (1705) we find another argument which shows that, rather than adding a power to matter, God merely exerts a force on matter continually:

... the very original laws of motion themselves cannot continue to take place, but by something superior to matter, *continually* exerting on it a certain force or power, according to such certain and determinate laws ... And not only so; but that most universal principle of gravitation itself, the spring of almost all the great and regular inanimate motions in the world, ... must of necessity be caused (either immediately or mediately) by something which penetrates the very solid substance of all bodies, and continually puts forth in them a force or power entirely different from that by which matter acts on matter. Which is, by the way, an evident demonstration, not only of the world's being made originally by a supreme intelligent cause; but moreover that it depends every moment on some superior being, for the preservation of its frame; and that all the great motions in it, are caused by some immaterial power (W II, 601)

For Clarke, then, God's operation consists of changing the velocity of bodies in a constant and regular manner, which we can describe by the law of gravitation.

Collins' conceivability argument therefore breaks down because of this important metaphysical difference; it is much easier to conceive of how God can

impress forces on bodies, rather than adding an active power. But Collins' argument did not come out of thin air, of course. He may have considered superaddition and continuous intervention 'equally conceivable' because important (and well-respected) figures had advocated for superaddition before. John Locke is an obvious example of this – Collins was a good friend of Locke's and very much aware of Locke's superaddition claims.¹⁰ Clarke's blanket dismissal may therefore have come as a surprise to Collins. Furthermore, Richard Bentley's *Boyle Lectures* of 1692 speaks of gravity in terms which many scholars have understood to indicate that he favored superaddition (Henry 2011, 13; Kochiras 2009, 273; Schliesser 2010, 87; Brown 2016, 40). To give just one example, Bentley writes that "This power [of gravity] therefore cannot be innate and essential to matter. And if it be not essential, it is consequently most manifest ... that it could never supervene to it, unless impressed and infused into it by an immaterial and divine power." (Bentley 1809, 235)

While it is still very much up for debate whether Bentley really advocated for superaddition (Connolly 2017), his lectures indicate at the very least that the terminology used at the time (forces, powers, impressions, tendencies, etc.) was far from clear and distinct. The mistake of conflating superadded powers and impressed forces may well be symptomatic of the time, as the distinctions were not yet entirely clear – much of the work of early Newtonians consisted of clarifying and discussing

¹⁰ After all, Locke himself acknowledged that "It is reward enough for the writing of my book, to have the approbation of one such a reader as you are. You have done me and my book a great honour, in having bestowed so much of your thoughts upon it. You have a comprehensive knowledge of it ... I know nobody that understands [my book] so well, nor can give me better light concerning it" (Locke 1824c, 285-6).

the Newtonian terminology they used. Even Clarke, in the passage from his *Discourse* quoted above, spoke of the ‘**force or power** continually put forth in matter’, while simultaneously acknowledging that matter cannot possibly have a power of self-motion in that very same text. As he writes: “dull and lifeless matter is utterly incapable of obeying any laws, or of being indued with any powers” (W II, 698). He later clarifies to Collins that “by the terms *forces* and *powers* [Newton] does not mean (as you did by *powers originally placed in matter by God*) to signify the *efficient cause* of certain determinate motions of matter, but only to express the *action* itself by which the effect is regularly produced, without determining the immediate *agent* or *cause* of that action” (W III, 848).

3.1 Causes and qualities in Clarke’s philosophy

With this in mind, we can make sense of Clarke’s response to Collins, which would otherwise not have been very clear. This is how he responds:

You find fault with me for asserting that gravitation is the effect of the continued and regular operation of some other being on matter, whereas, you think, it does not appear but that matter gravitates by virtue of powers originally placed in it by God, and is now left to itself to act by those original powers. This opinion of yours I cannot but think, Sir, to be a great mistake in your philosophy. For when a stone that was at rest does of itself, upon its support being removed, begin to fall downward, what is it that causes the stone to begin to move? Is it possible to be an effect produced without cause? Is it impelled without any impeller? Or can a law or power – that is to say a mere abstract name or complex notion, and not any real being – impel a stone

and cause it to begin to move? In any other case you would not doubt but this implied an absolute contradiction. (W III, 792)

The crux here is the question Clarke asks “Is it possible to be an **effect** produced without **cause**?” In other words, the stone beginning to move must be considered to be only an effect. The change of velocity (i.e., the net force acting on the stone) is not itself a power or cause of motion, but merely the effect of some underlying cause. The mistake people make, according to Clarke, is that they do not understand the difference between the *cause* of gravity and the abstract description of its *effect*. ‘Law of gravity’ is only such an abstraction; a law describes certain regular motions of matter, but laws are not themselves causes or qualities.¹¹

A similar argument can be made for power of gravity: we should not think of powers such as those of gravity as real beings, because ‘gravity’ merely describes the (regularly produced) effect of something external to the bodies (namely, God or some other intelligent being). As Clarke explains elsewhere in the correspondence:

¹¹ When Clarke asks “can a law or power – that is to say a mere abstract name or complex notion, and not any real being – impel a stone and cause it to begin to move?”, he is not suggesting that powers and laws are the same, nor that powers are mere abstractions. Powers are real and really do inhere in substances, though not in matter. Laws, on the other hand, are mere abstract notions. This is evident from the discussions between Clarke and Collins, e.g. in Clarke’s second defense (W III 784-7). Rather, in the instances where Clarke speaks of “law or power”, he is expressly discussing the vulgar and inexact notions of his opponents, who do use the words ‘law’ and ‘power’ confusedly.

For the Eye's power of seeing ... is one of those powers which I called the third sort, viz. which are merely abstract names signifying certain powers or effects which do not at all reside in the subject. For the eye does not see, in the same sense as the thinking substance thinks; but seeing in the eye, is what magnetism is in the load-stone; not a real inherent quality, but merely a situation of parts and pores, so as to be the occasion of an effect wholly extrinsical to itself, an effect produced in some other substance ... So that you might exactly as well have compared the power by which the soul thinks, to the power by which a sieve transmits corn, as to the power by which the eye sees. (W III, 790)

In this sense, many things which men commonly call powers are strictly speaking not powers at all, but mere abstractions. Just as a sieve does not have a real power of transmitting corn, so too does matter not have a real power of gravitational attraction. The cause of a stone's attraction to the earth is wholly extrinsic to the stone itself, and is therefore not a power of the stone. The analogy between magnetism and gravitation is not perfect, however, as it seems that Clarke understands magnetism as the effect of material effluvia (i.e. in a mechanical fashion), whereas gravity *cannot* be explained by the mechanical philosophy (W III, 846).

That being said, this does not mean that there is not somewhere else a power which causes gravity – clearly, something must have a real power of moving matter around. And Clarke makes this clear later in his second letter to Collins: "Gravity is not a quality of matter arising from its texture or any other power in it, but merely an endeavor to motion, excited by some foreign force or power." (W III, 798)

Clarke explicates his scheme of inhering or non-inhering powers and qualities in his first letter to Collins (W III, 759-60):

1. Primary qualities:¹²

- Those "which do, strictly and properly speaking, inhere in the substance to which they are ascribed."

2. Secondary qualities:

- Those which are "not really qualities of the system, and evidently do not at all in any proper sense belong to it, but are only effects occasionally produced by it in some other substance, and truly qualities or modes of that other substance in which they are produced."

3. Abstract qualities:

- "Other powers, such as magnetism and electrical attractions are not real qualities at all residing in any subject, but merely abstract names to express the effects of some determinate motions of certain streams of matter. And gravitation itself is not a quality inhering in matter, or that can possibly result from any texture or composition of it, but only an

¹² Clarke's scheme might be confusing to many, who are reminded of other primary-secondary divisions found in early modern philosophy. Clearly Clarke's scheme differs from Boyle's, Locke's or the scholastics. However, the terminology of primary-secondary qualities still applies, as it follows the familiar pattern of explanatory priority; secondary qualities 'proceed from' or are the 'consequences of' primary qualities. See (Pasnau 2011, 486)

effect of the continual and regular operation of some other being upon it, by which the parts are all made to tend one towards another."

Each type of quality corresponds to a different sense in which a quality can belong to a substance. His argument against superadded gravity is clearly represented in this scheme: We cannot superadd 'gravitation' because it is not a power of matter at all, only an abstract description of the effect of some real power of an (immaterial) being which acts on matter in some way.

Clarke presents this scheme as if it is obvious to anyone, but clearly this is a new invention of his own making. Even in his Boyle Lectures just a few years earlier, Clarke did not make use of the notion of 'abstract qualities'. It is notably absent, for instance, in one of the instances where he rebuts Gildon and Blount's *Oracles of Reason*, which would have been a perfect opportunity for him to put forward his scheme of qualities (W II, 545). Instead, in the Boyle Lectures he uses the signification 'negative qualities' and "mere effects" for what he would later come to call abstract qualities. He did however already have the idea in mind that those things which many people consider qualities or powers, are in fact nothing more than 'mere effects' or human inventions.

Once we grasp the significance of Clarke's notion of abstract qualities, we see that not just gravitation, but every regularly produced effect may be described as a law of nature, though it would be a mistake to confuse these effects for real inherent powers of matter. We find a more explicit statement of this in Clarke's *Discourse Concerning the Unalterable Obligations of Natural Religion* (1705):

Matter [is] evidently not at all capable of any laws or powers whatsoever, any more than it is capable of intelligence [...] So that all those things which we commonly say are the effects of the natural powers of matter, and laws of motion; of gravitation, attraction, or the like; are indeed (if we speak strictly and properly) the effects of God's acting upon matter continually and every moment, either immediately by himself, or mediately by some created intelligent beings. [...] Consequently there is no such thing, as what men commonly call the course of nature, or the power of nature. The course of nature, truly and properly speaking, is nothing else but the will of God producing certain effects in a continued, regular, constant and uniform manner (W II, 698)

Again, we may describe the regular effects by means of laws, but we must not conflate those laws with the underlying powers that cause these regular effects.¹³ A real power requires agency – because if the effect necessarily follows from external circumstances, then it is not a real power at all but merely a consequence of other things. Clarke ascribes this necessitarian argument of a chain of causes and effects to Hobbes and Spinoza (W II, 560), and explicitly refutes it by showing that humans have a real power of beginning motion (W II, 557).

¹³ It is no coincidence that he defines abstract qualities in terms of “determinate motions” and “continual and regular operation[s]” – there is a strong connection between abstract qualities and laws.

4. Clarke on superadding to matter the real power behind gravity

This may all seem to be a cheap trick: Even if we grant that gravitation is only an abstraction, could we not just superadd the cause or power responsible for gravity? Depending on how we envisage this power, there are several ways in which Clarke cuts off the possibility of a material power of gravity.

First and foremost, as matter is incapable of any powers of self-motion whatsoever, matter is not itself determining its motions; it is only being moved by external factors (W II, 697). Now, to say that something is a cause of an effect, means that *this* object, more than any other object, is the reason for the effect being produced. But evidently, if the object is merely being pushed around by external factors, then it is not itself the real cause of the effect. In other words, for it to make sense to speak of some object as being the cause of an effect, the object needs to have some determining influence in bringing about the effect.¹⁴ It is a power of actively beginning new motions. As he says in a letter to Bulkeley, “Action and freedom are, I think, perfectly identical ideas.” (W IV, 714) If the effect is fully determined by external factors, then obviously the object was not itself acting, but was only being acted upon: “Without

¹⁴ One might object at this point and ask, “surely if A *freely* causes B and B *necessarily* causes C, B is still a real cause of C?” Clarke would argue however that $B \rightarrow C$ is fully explained by $A \rightarrow B$, and therefore to give a true explanation of C, one would have to trace the chain of causes until it finds a link which cannot be accounted for by physical necessity. If we don’t give A, we are not *really* explaining C. Furthermore, he would remark that in any case it shows that there must be at least *one* free cause at the end of such a causal chain. So in the case of gravity, one cannot ground the power of gravity in these necessary causes, but instead it is required that we ground it on some real power of beginning motion. Lastly, Clarke does not seem overly concerned with distinctions between proximate and ultimate causes, nor with many other more subtle problems related to causation. Clarke does not seem to care much about the (lack of) explanatory value of proximate causes, but cares more about the metaphysical principle that there must be *some* real cause (and free agent) which actually produced the motions (W II, 559).

liberty, nothing can in any tolerable propriety of speech, be said to be an agent, or cause of any thing. For to act necessarily, is really and properly not to act at all, but only to be acted upon." (W II, 548). That is to say, if the object has no relevance in the determining of the effect, it is simply not factoring in as a cause of the effect.

Likewise, in his later remarks on Collins' *A Philosophical Enquiry concerning Human Liberty* (1717), he repeats these very same arguments:

A necessary agent therefore, I say, with or without sensation, is no agent at all: But the terms are contradictory to each other. To be an agent, signifies, to have a power of beginning motion: And motion cannot begin necessarily; because necessity of motion, supposes an efficiency superior to, and irresistible by, the thing moved; and consequently the beginning of the motion cannot be in that which is moved necessarily, but in the superior cause, or in the efficiency of some other cause still superior to that, till at length we arrive at some free agent. (W IV, 722)

Again, we see his idea of causation laid out; when considering an effect, we can trace a chain of causes which are all necessary, but at some point we will strike upon the real beginning of that motion, namely a free action by an immaterial agent.

For instance, the gravitational attraction of bodies constantly changes in magnitude and direction depending on positions and mass of other bodies surrounding it. However, the attraction depends *solely* on these external factors. There is nothing internal to the bodies themselves, which would be able to account for it having a tendency this way or that way. This determination would have to be a necessary consequence of external factors (i.e., the position and mass of surrounding

bodies), which excludes it from being inherent or essential to the body. We find this line of reasoning in his rebuttal of Toland's theory of autokynesis:

One late author has indeed ventured to assert, and pretended to prove, that motion (that is, the *conatus* to motion, the tendency to move, the power or force that produces actual motion) is essential to all matter. [But] The essential tendency to motion of every one or of any one particle of matter [...] must be either a tendency to move some one determinate way at once, or to move every way at once. A tendency to move some one determinate way cannot be essential to any particle of matter, but must arise from some external cause because there is nothing in the pretended necessary nature of any particle to determine its motion necessarily and essentially one way rather than another. And a tendency or *conatus* equally to move every way at once is either an absolute contradiction, or at least could produce nothing in matter but an eternal rest of all and every one of its parts. (W II, 531)

Gravity cannot be a free choice, but it also cannot be an essential tendency of bodies, because the direction and magnitude depends on external factors.

Clarke's strict distinction between body and soul rests fundamentally on this deeper and more radical insight: activity requires free agency, which in turn requires intelligence and consciousness. (Clarke distinguishes between passive and active intelligence and consciousness; the active kind would be the power to act and have self-motion (W II, 548). The passive kind, Clarke argues, is not 'real' intelligence or consciousness at all.¹⁵) This connection with consciousness also ties back into the

¹⁵ Rozemond has pointed out that Clarke does not explain in the Clarke-Collins correspondence why thinking requires an immaterial subject (Rozemond 2008, 166). Clarke's way of distinguishing between

Achilles Argument which is so central to the Clarke-Collins correspondence; if matter has self-motive powers, then every particle has its own consciousness. According to Clarke, “numberless absurdities” would follow from such a “monstrous supposition.” (W II, 562) First of all that consciousness is undivided while matter is essentially divisible (Rozemond 2008, 2009). Secondly, because matter is infinitely divisible, each body would therefore be composed of “innumerable consciousnesses and infinite confusion.” (W II, 562) Thirdly, to suppose that matter has the power of thought or consciousness is only to “[put] an ambiguous signification upon the word matter, where he ought to use the word substance.” (W II, 563)

Another reason why a material power of gravitation is impossible, is that Clarke does not consider the power of gravity to be something which acts on just one body – it is an “operation ... by which the parts are *all* made to tend one towards another.” (W III, 760) This would mean that whatever causes gravity has to be substantially present in all bodies and extend to the centers of all bodies, because there is no action at a distance in Clarke’s philosophy. For instance, in a footnote to his translation of Rohault he makes the following remark:

Since nothing acts at a Distance, that is, nothing can exert any Force in acting where it is not, it is evident, that Bodies (if we would speak properly) cannot at all move one another, but by

passive and active powers of the soul, as laid out in his Boyle Lectures, might play a role in his reasoning. If thinking is inseparable from ‘being a cause’, then it is indeed impossible for matter to think even without taking into consideration the Achilles argument.

Contact and Impulse. Wherefore *Attraction* and *Sympathy* and all *occult Qualities*, which are supposed to arise from the *Specifick Forms* of Things are justly to be rejected. Yet because, besides innumerably other Phaeonomena of Nature, that universal Gravitation of Matter, which shall be more fully handled afterwards, can by no means arise from the mutual Impulse of Bodies (because all Impulse must be in proportion to the Superficies, but Gravity is always in proportion to the Quantity of solid Matter, and therefore must of Necessity be ascribed to some Cause that penetrates the very inward Substance itself of solid Matter) therefore all such *Attraction*, is by all means to be allowed, as is not the Action of Matter at a Distance, but the Action of some immaterial Cause which perpetually moves and governs Matter by certain Laws. (Rohault 1729, 54)

Lastly, we may very well wonder whether it is even *possible* for God to superadd gravity (for instance in some alternative universe). Ezio Vailati has claimed that while “the idea that matter is passive ... sits well with Clarke’s and Newton’s view of God as the Lord God”, this is nevertheless a contingent fact because “of course, after creation the Lord God could imbue matter with power and let it go, as it were.” (Vailati 1997, 145) What is stopping Clarke from accepting this possibility, according to Vailati, is that “Clarke could not bring himself to accept active matter because he thought of it as a prelude to atheism.” I think Vailati is here missing an important point of Clarke’s arguments: Though it may not be strictly impossible, the consequences of such a superaddition would extend far beyond mere theological considerations. If God wants to add a power of gravitation to matter, he would also have to add powers of consciousness, freedom and self-motion. It is important to realize that these are a package deal in Clarke’s philosophy. As he writes to Bulkeley: “So far as any thing is

passive, so far it is subject to necessity; so far as it is an agent, so far it is free: for action and freedom are, I think, perfectly identical ideas" (W IV, 714), and in a later letter: "action supposes (in the very notion of it) life and consciousness." (W IV, 717) This is the minimal set of powers required, in which gravity would be some kind of autokinesis of every body moving itself according to its own inclinations. (Even then, his rejection of Toland may still apply; if the effect is determined fully by external bodies, and the bodies have no say over their own motions, why would we consider them an agent at all?) On the other hand, if we take seriously the suggestion that gravity is a universal (or shared) power acting on all bodies (i.e., it is not a power of one body, but acts on all bodies at once), then it could definitely not be a power of material bodies at all, as such an action would interfere with the principle of local action (a substance has to be 'substantially present' to act) and the principle of impenetrability of matter. Whatever is left once we throw out all of these principles (locality, impenetrability, passivity), no longer has anything in common with what we call 'matter'.¹⁶ The far more likely candidate, then, is that gravity is the direct effect of some omnipresent intelligent immaterial agent.

¹⁶ This is akin to his rebuttal of thinking matter in *Demonstrations X*: "... by 'matter' they must understand substance in general, substance endowed with unknown powers, with active as well as passive properties (which is confounding and taking away our idea of matter ...)" (WII, 564)

5. Conclusion

And so we have come full-circle; Henry's suggestion of superaddition is reflected in Collins' challenge to Clarke in 1707. As I have shown, Clarke had already given an answer to this challenge. Clarke had a number of reasons to reject Collins' claim. Firstly, superaddition and continuous intervention are not equally conceivable, because adding a power is ontologically very different from adding a force. Secondly, gravity is only an effect, which makes it nonsensical to speak of superadded powers of gravitation. The only logical way to endow matter with gravitation, is by a continuous intervention on matter by an omnipresent immaterial agent. Thirdly, even aside from these considerations, bodies cannot have their own powers of gravitation, because the effect is fully determined by factors external to the body. Thus, the body is not a factor in the causal chain; it is not itself acting, but only being acted upon. Lastly, it does not even make sense to consider whether God, in his infinite power, 'could have' done things differently, as this would require such radical changes in the concept of matter that we would no longer be talking about the same thing.

As it turns out then, superaddition is not at all a viable possibility in Clarke's system of philosophy. Even though it has been firmly established in the scholarship *that* Clarke rejected superaddition, this claim has so far been supported only by pointing out the passages which demonstrate his rejection. What has been lacking is Clarke's rationale behind the rejection. Providing such an explanatory account of Clarke's rejection is not only important for the superaddition debate, but also for our understanding of Clarke's philosophy as a whole.

In this paper I have taken up Collins' (and Henry's) challenge and laid out Clarke's arguments against superadded gravity. My contribution has been to emphasize the significance of the so-far overlooked notion of abstract qualities in Clarke's arguments, which play a big role in Clarke's rejection of any laws or powers of nature. Furthermore, I have explicated the connections between the various concepts which play a role in Clarke's rejection of material powers; abstractions and laws, causes and effects, agency and freedom. The way in which these various concepts hang together in Clarke's philosophy, affords us a clear understanding of Clarke's theory of the cause of gravity.

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